

The identity of *Aleuritopteris veitchii* and *A. duclouxii* var. *sulphurea* in Sinopteridaceae

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Abstract The type specimens of *Aleuritopteris veitchii* (Christ) Ching, *A. duclouxii* (Christ) Ching var. *sulphurea* Ching, and *A. cremea* Ching ex S. K. Wu were carefully examined. The lectotype of *A. veitchii* was designated based on the original description. *A. cremea* was identical to the above species and thus reduced to a synonym of it. It is characterized by concolorous, linear-lanceolate rhizome scales and finely dissected fronds with sulphur-yellow farina. *A. duclouxii* var. *sulphurea*, whose rhizome scales are distinctly bicolorous, can be easily distinguished from *A. veitchii*. The name of the above variety is reinstated.

Key words *Aleuritopteris*, lectotype, new synonymy, *Aleuritopteris veitchii*, *Aleuritopteris duclouxii* var. *sulphurea*.

Christ (1906) published *Doryopteris veitchii* Christ based on two different specimens. One of them (Wilson 5397, Fig. 1: A), which is characterized by concolorous, linear-lanceolate rhizome scales and finely dissected fronds with sulphur-yellow farina, is designated here as the lectotype, based on the original description; the other (Wilson 5396, Fig. 1: B), whose rhizome scales are lanceolate, bicolorous, with dark central stripe and light narrow margins, should be referred to as another species (*Aleuritopteris duclouxii* (Christ) Ching var. *sulphurea* Ching). Later, Ching (1941) transferred *Doryopteris veitchii* into the genus *Aleuritopteris* Fée.

In 1935, Ching proposed a new variety, *Cheilanthes duclouxii* (Christ) Ching var. *sulphurea* Ching, which differs from the typical variety (*C. duclouxii*) in its sulphur-yellow farina. Moreover, he pointed out that this variety should not be confused with *Cheilanthes veitchii* (Christ) Ching (*Aleuritopteris veitchii*), from which it differs in the stipe being not glossy black and fronds not so finely dissected. Later, *Cheilanthes duclouxii* was moved to the genus *Aleuritopteris*, and the above variety was still treated as distinct from *A. veitchii* (Ching, 1941). However, Wu (1981) treated it as a synonym of *A. veitchii*. At the same time, he proposed a new species named *Aleuritopteris cremea* Ching ex S. K. Wu. After examining specimens of the complex, including the type, we confirm that *A. cremea* is identical to *A. veitchii*, and the former one should be reduced as a synonym. The erroneous taxonomic treatment was also followed in “Flora Reipublicae Popularis Sinicae” (Wu, 1990). So the specimens of the above two taxa deposited in Chinese herbaria are often erroneously labeled.

1. *Aleuritopteris veitchii* (Christ) Ching in Hongk. Nat. 10: 200. 1941.—*Doryopteris veitchii* Christ in Bull. Acad. Int. Géogr. Bot. 15: 134. 1906; C. Chr. in Ind. Fil. Suppl. 1: 28. 1913.—*Cheilanthes veitchii* (Christ) Ching, C. Chr. in Ind. Fil. Suppl. 3: 55. 1934. Type: Western China. Without precise locality, *E. H. Wilson* 5397 (lectotype, here designated, P!).

Aleuritopteris cremea Ching ex S. K. Wu in Acta Phytotax. Sin. 19 (1): 65. 1981; H. S. Kung in Fl. Sichuan. 6: 246, t. 77, figs. 2–4. 1988; S. K. Wu in Ching & K. H. Shing, Fl.

Reip. Pop. Sin. 3 (1): 150. 1990; X. C. Zhang & L. Shi in Acta Phytotax. Sin. 32 (1): 95, figs. 5, 6. 1994, syn. nov. Type: China. Sichuan (四川): Baoxing (宝兴), on crevices, alt. 1500 m, S. Chiang (姜恕) 10170 (PE!).

金爪粉背蕨 Fig. 1: A, 2: A–C



Fig. 1. Two specimens cited when *Doryopteris veitchii* (*Aleuritopteris veitchii*) was published. **A**, Wilson 5397 (lectotype, here designated, P). **B**, Wilson 5396 (P).

Rhizomes short, ascending; scales chestnut-brown, concolorous, narrowly lanceolate, apex subulate. Leaves clustered. Petiole 8–15 cm, chestnut-red or dark brown, lustrous, covered with reddish brown, linear scales at base. Blade ovate-pentagonal, 7–15×5–10 cm, 2-pinnate-pinnatifid, apex caudate, adaxially glabrous, abaxially with pale yellow farina; rachis and costae of the same color as petiole. Pinnae 4–5 pairs, sessile, separated from each other, basal pair largest, nearly triangular, 1-pinnate-pinnatifid; pinnules 4–7 pairs, proximal basisopic pinnule largest, 3–4×1–2 cm, 1-pinnatifid; ultimate segments oblong or ovate. Veins pinnate, obscure. Sori at vein tips. False indusia membranaceous, continuous, margins entire. Spores subglobose, with a reticulate perine.

Rare, endemic to Sichuan, China. Usually on crevices at 1300–2000 m altitude.

Representative specimens:

Sichuan (四川): Baoxing (宝兴), S. Chiang (姜恕) 10170 (Type of *A. cremea*, PE), X. B. Zhang & Y. X. Ren (张秀宝, 任有铤) 7614 (PE); Chongqing–Chengdu (重庆至成都), T. N. Liou (刘慎谔) 9787 (PE); Kangding (康定), C. L. Wu (吴中伦) 12184 (PE); Miyi (米易), G. M. Zhang (张钢民) 487 (PE); Panzhihua (攀枝花), G. M. Zhang (张钢民) 591 (PE); Xichang (西昌), L. Liou & H. S. Kung (刘亮, 孔宪需) 882 (PE).

2. *Aleuritopteris duclouxii* (Christ) Ching var. *sulphurea* Ching in Hongk. Nat. 10: 199. 1941. — *Doryopteris duclouxii* Christ f. *argentea* Christ, Mem. Soc. Bot. France 1 (1): 58. 1905. — *Cheilanthes duclouxii* (Christ) Ching var. *sulphurea* Ching in Ic. Fil. Sin. 3: 133. 1935. Type: China. Yunnan (云南): Heqing (鹤庆), Mt. Mao Kou Tchang, near Ta-pin-tze, Delavay 9 (syntype, PE!).

Doryopteris mairei Brause, Hedwigia 54: 206, t. 4, fig. J. 1914. Type: China. Yunnan (云南): Without precise locality, *Maire* 6502 (holotype, not seen).

Aleuritopteris veitchii auct. non Ching: S. K. Wu in Acta Phytotax. Sin. 19 (1): 64. 1981; et in Ching & K. H. Shing, Fl. Reip. Pop. Sin. 3 (1): 149. 1990; H. S. Kung in Fl. Sichuan. 6: 245, t. 77, fig. 1. 1988; X. C. Zhang & L. Shi in Acta Phytotax. Sin. 32 (1): 97. 1994.

硫磺粉背蕨 Fig. 2: D–F

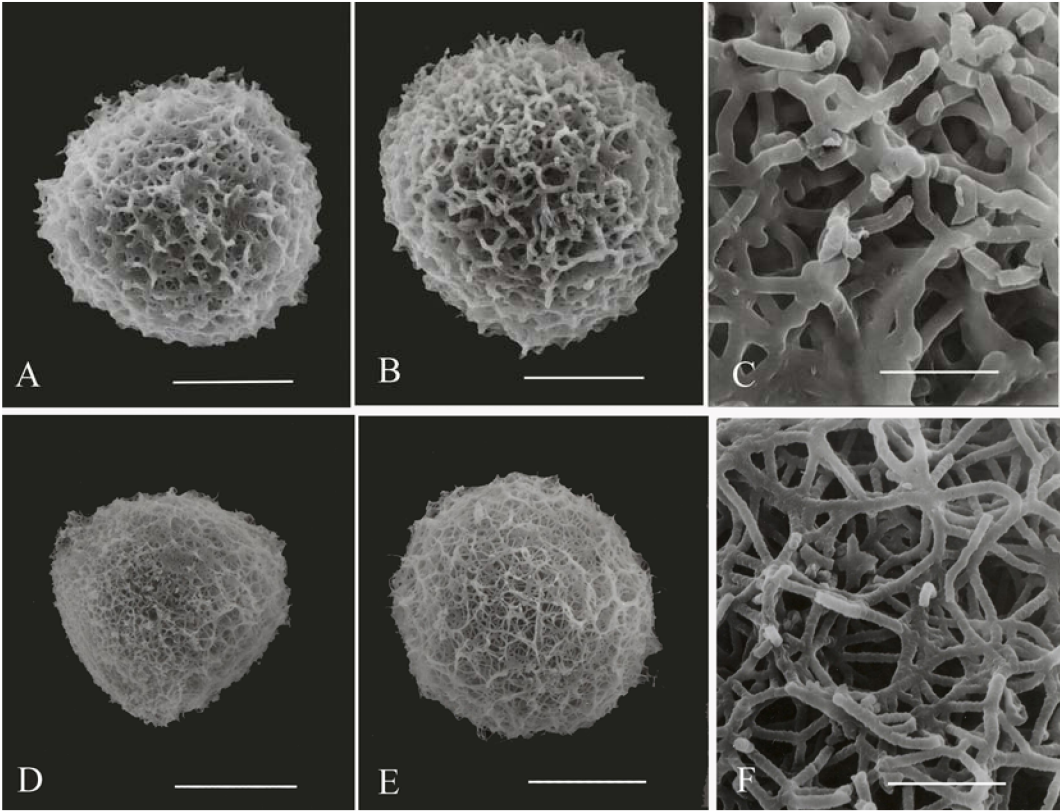


Fig. 2. Spore morphology of *Aleuritopteris veitchii* (A–C, voucher specimen: *S. Chiang* 10170) and *A. duclouxii* var. *sulphurea* (D–F, voucher specimen: *T. P. Zhu* 263). Scale bar: A, B, E, 20 µm; C, 3.8 µm; D, 25 µm; F, 3.0 µm.

Rhizome short, erect; scales lanceolate, bicolorous. Leaves clustered, 15–47 cm high. Petiole 8–33 cm long, red brown to castaneous, scaly at base. Blade ovate-oblong or pentagonal, caudate at top, 6–15 cm long, nearly equal to wide, coriaceous, adaxially glabrous, abaxially with sulphur-yellow waxy powder, bipinnatifid or tripinnatifid at base. Pinnae 3–5 pairs, sessile, opposite, extending upwards; the upper lateral pinnae generally simple, entire, falcate, while two basal pairs much larger, nearly semipinnatifid, i.e., only the

lower side of costa with conspicuous segments. Ultimate segments usually falcate, with an acuminate apex. Indusia narrow, continuous, with an entire margin. Sori confluent at mature. Spores subglobose, with a reticulate perine.

Endemic to SW China. Distributed in Sichuan and Yunnan. Usually on crevices or terrestrial in evergreen forests at 1300–2200 m altitude.

Representative specimens:

Sichuan (四川): Kangding (康定), H. S. Kung (孔宪需) 6100 (PE); Mianning (冕宁), T. S. Ying (应俊生) 4373 (PE); Miyi (米易), T. P. Zhu (朱太平) 263 (PE), G. M. Zhang (张钢民) 502 (PE); Muli (木里), Qinghai-Xizang Exped. (青藏考察队) 12929 (KUN), G. M. Zhang (张钢民) 279 (PE); Panzhihua (攀枝花), Qinghai-Xizang Exped. (青藏考察队) 11321 (KUN), G. M. Zhang (张钢民) 598 (PE); Xichang (西昌), H. Smith 1830 (K; photo, PE), H. S. Kung (孔宪需) 3480 (PE, PYU). **Yunnan** (云南): Binchuan (宾川), T. N. Liou (刘慎谔) 17719 (PE); Dayao (大姚), NW Yunnan Jinshajiang Exped. (滇西北金沙江队) 6813 (PE, PYU, KUN); Heqing (鹤庆), Delavay 9 (PE), R. C. Ching (秦仁昌) 24631 (PE, KUN); Lijiang (丽江), W. M. Chu & Y. M. Feng (朱维明, 冯永明) 1050 (PYU, PE); Luquan (禄劝), W. M. Chu et al. (朱维明等) 1624 (PYU, PE); Yongren (永仁), W. M. Chu & J. L. Wu (朱维明, 吴金亮) 1739 (PYU, PE).

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金爪粉背蕨和硫磺粉背蕨的名实问题

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摘要 对金爪粉背蕨*Aleuritopteris veitchii* (Christ) Ching、硫磺粉背蕨*A. duclouxii* var. *sulphurea* Ching和*A. cremea* Ching ex S. K. Wu的模式标本进行了考证。根据原始描述指定了金爪粉背蕨的后选模式, 并将*A. cremea*处理为它的异名。该种的特征是根状茎上的鳞片为同色, 狭披针形, 叶片分裂较细且被硫磺色粉状物。硫磺粉背蕨*A. duclouxii* var. *sulphurea*根状茎上的鳞片明显二色, 与上者不同, 本文重新恢复了该变种名称。

关键词 粉背蕨属; 后选模式; 新异名; 金爪粉背蕨; 硫磺粉背蕨